Schlumberger

Company: Lamont Doherty

Well: Leg 208, Site 1263A
Field: Walvis Ridge
Country: Africa Ocean: Atlantic

Phasor Induction

Country: Africa
Field: Walvis Ridge
Location: Rig: Joides Resolution
Well: Leg 208, Site 1263A
Company: Lamont Doherty

LOCATION

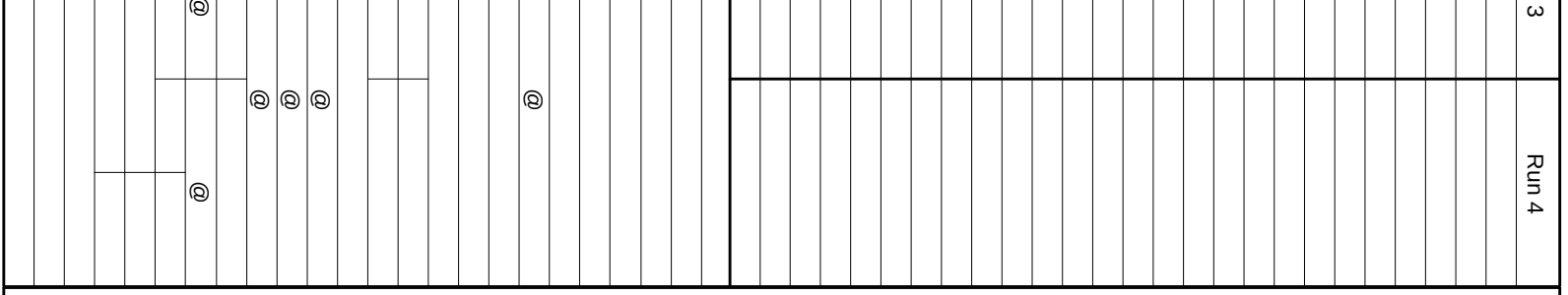
Elev.: K.B. 11.3 m
G.L. -2728.2 m
D.F. 11 m

Permanent Datum: MSL Elev.: 0 m
Log Measured From: DF 11.3 m above Perm. Datum
Drilling Measured From: DF

API Serial No.	Max. Hole Devi.	Longitude 2.7795 E	Latitude 28.5329 S

		Run 1	Run 2	Run
Logging Date				
Run Number	1			
Depth Driller	3073.84 m			
Schlumberger Depth	3072 m			
Bottom Log Interval	3070 m			
Top Log Interval	2720 m			
Casing Driller Size @ Depth	0.000 in @ 2810.35 m	@	@	
Casing Schlumberger	2812 m			
Bit Size	9.875 in			
Type Fluid In Hole				
MUD Density / Viscosity	1.1 g/cm3			
MUD Fluid Loss / PH				
MUD Source Of Sample				
RM @ Measured Temperature	0.322 ohm.m @ 23 degC	@	@	
RMF @ Measured Temperature	@	@	@	
RMC @ Measured Temperature	@	@	@	
Source RMF / RMC				
RM @ MRT / RMF @ MRT	0.362 @ 18	@ 18	@	@
Maximum Recorded Temperatures	18 degC			
Circulation Stopped / Time				
Logger On Bottom / Time				
Unit Number / Location	99 Houston, ODP			
Recorded By	Steve Kittredge			
Witnessed By	Philippe Gaillot			

	Run 1	Run 2	Run
Logging Date			
Run Number			
Depth Driller			
Schlumberger Depth			
Bottom Log Interval			
Top Log Interval			
Casing Driller Size @ Depth	@		
Casing Schlumberger			
Bit Size			
Type Fluid In Hole			
MUD Density / Viscosity			
MUD Fluid Loss / PH			
MUD Source Of Sample			
RM @ Measured Temperature	@		
RMF @ Measured Temperature	@		
RMC @ Measured Temperature	@		
Source RMF / RMC			
RM @ MRT / RMF @ MRT	@	@	
Maximum Recorded Temperatures			
Circulation Stopped / Time			
Logger On Bottom / Time			
Unit Number / Location			
Recorded By			
Witnessed By			



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OTHER SERVICES1	OTHER SERVICES2
OS1: MESTB/DSI/SGTN	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:

REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
Hole Cored with APC/XCB	
All Depth in Meters Below Rig Floor (MBRF)	
Hole Flushed with Sepiolite	
Sea Floor Driller- 2728.2 MBRF.	
Sea Floor Logger- 2727 MBRF.	
Total Depth Driller- 3073.84 MBRF	
Total Depth Logger- 3072 MBRF.	
Casing Bottom Driller- 2810 MBRF.	
Casing Bottom Logger- 2812 MBRF.	
Had problems getting tool in pipe.	
LFV was not latched open.	
Minitron was turned off when tool would not come in pipe.	
HLDS caliper arm was broken off.	

RUN 1

SERVICE ORDER #:
PROGRAM VERSION: 10C0-306
FLUID LEVEL:

LOGGED INTERVAL	START	STOP

RUN 2

SERVICE ORDER #:
PROGRAM VERSION:
FLUID LEVEL:

LOGGED INTERVAL	START	STOP

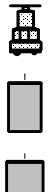
EQUIPMENT DESCRIPTION

RUN 1

SURFACE EQUIPMENT

SFT-281 24
SFT-178 4722
GSR-U 135
WITM (DTS)-A

DOWNHOLE EQUIPMENT



LEH-QT LEH-QT			28.69
DTC-H ECH-KC 9343	CTEM TelStatus ToolStatu	27.52 26.89	27.80
HNGS-BA	Upper_1 Lower_2	26.19 25.98	26.89

RUN 2

HNGS-BA 77
HNSH-BA 79

Lower_2 25.98

ILE-D 24.39
ILE-D

Status
Minitron
Near TD
Near Arr
Near
Far Arr
Far
Far TD

APS-BA 21.95
APS-BA 22
APH-AC 22
MNTR-F 4185

19.51
19.43
19.30
19.20

NPLC-B 18.01
NPLC-B 79
NPH-B 82

Status 16.78

HLDS 15.56
GSR-Z 1846
HLDV-D 35
HLDS-D 45
HEH-H 35
HLDP-C 35

Caliper
SS LS Status 11.51

DTA-A 10.74
ECH-KE 8231
DTA-A 8231

DIT-E 9.52
DIC-EB 438
MIH-ZA 417
DIS-HB 442

SP 3.15
Deep Ind 2.90
Aux Meas SFL 1.98
Med Ind 1.83
Status HV DF
Tension 0.00

TOOL ZERO

MAXIMUM STRING DIAMETER 3.88 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN METERS

Output DLIS Files

DEFAULT	PI_LDL_APS_NGS_034LUP	FN:17	PRODUCER	01-Apr-2003 06:42	3074.7 M	2720.0 M
TCOMBO_CUST	PI_LDL_APS_NGS_034LUP	FN:18	PRODUCER	01-Apr-2003 06:42	3074.7 M	2720.0 M

OP System Version: 10C0-306

MCM

MAIN UP LOG

DIT-E	10C0-306	DTA-A	10C0-306
HLDS	SPC-2277-NUCL_b	NPLC-B	OP10-KP1
APS-BA	SPC-2277-NUCL_b	HNGS-BA	SPC-2277-NUCL_b
DTC-H	10C0-306		

Changed Parameter Summary

DLIS Name	New Value	Previous Value	Depth & Time
GCSE	BS	LCAL	2809.6 09:41:06
S1BI	1.3 CPS	-999.25 CPS	3075.2 06:42:49
S2BI	1.3 CPS	-999.25 CPS	3075.2 06:42:54

PIP SUMMARY

Time Mark Every 60 S

SFL_QUAL From D3T to SFQF

IM_QUAL From SFQF to IMQF

SFL Averaged (SFLA)
0 (OHMM) 3

HNGS Spectroscopy Gamma Ray (HSGR)
0 (GAPI) 100

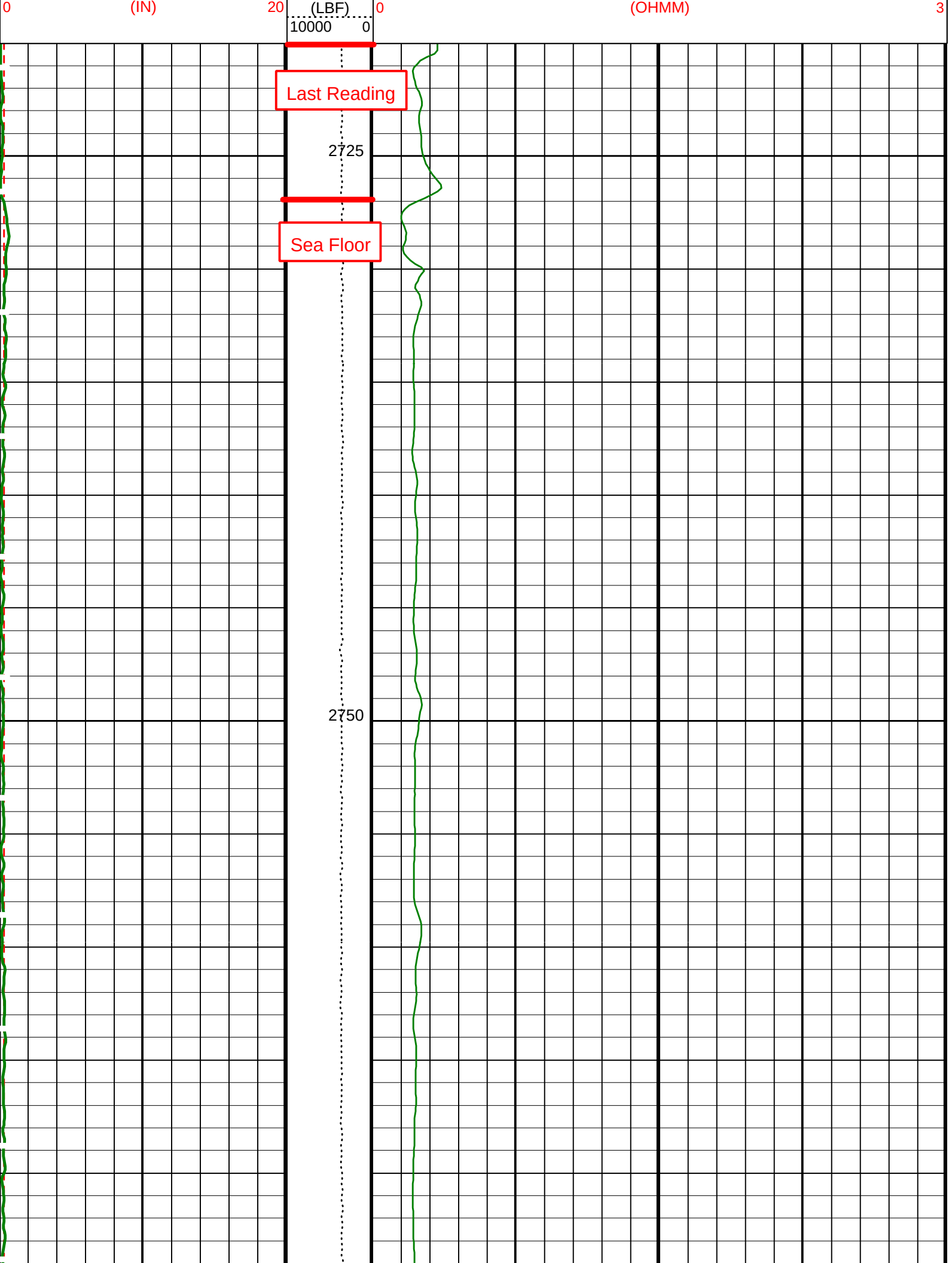
ID_QUAL From IMQF to IDQF

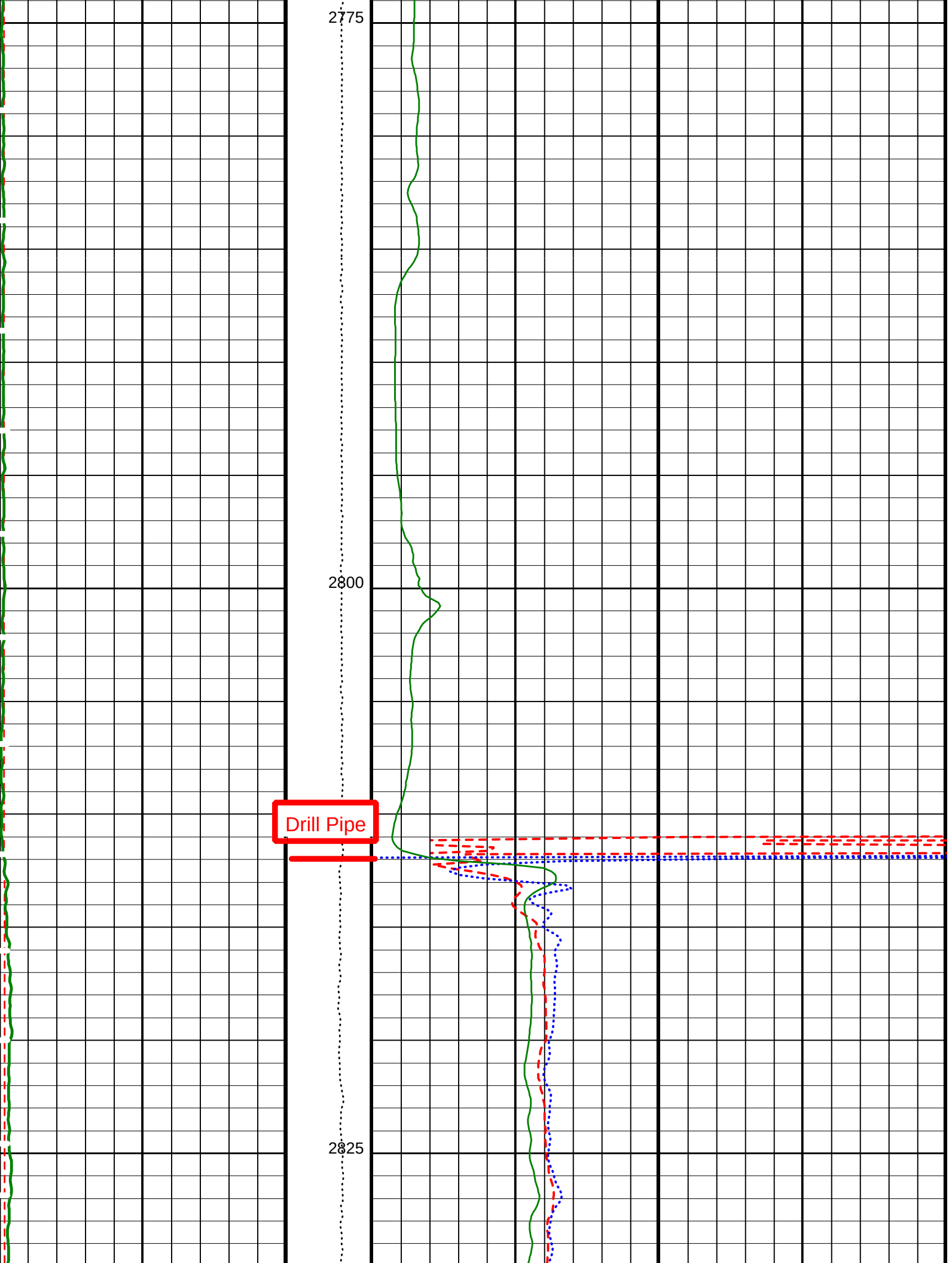
Medium Induction Phasor-processed Resistivity (IMPH)
0 (OHMM) 3

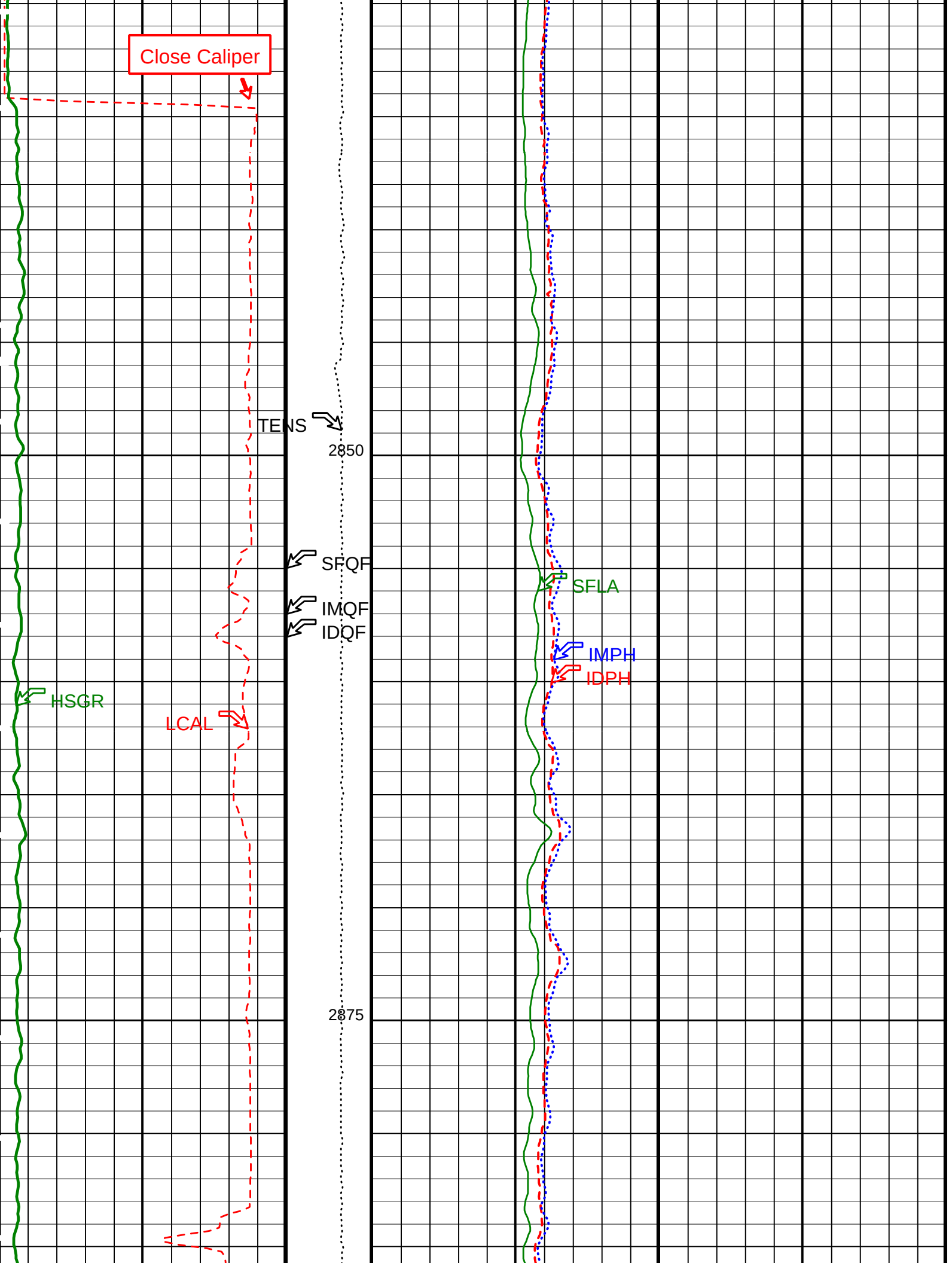
HLDS Caliper (LCAL)

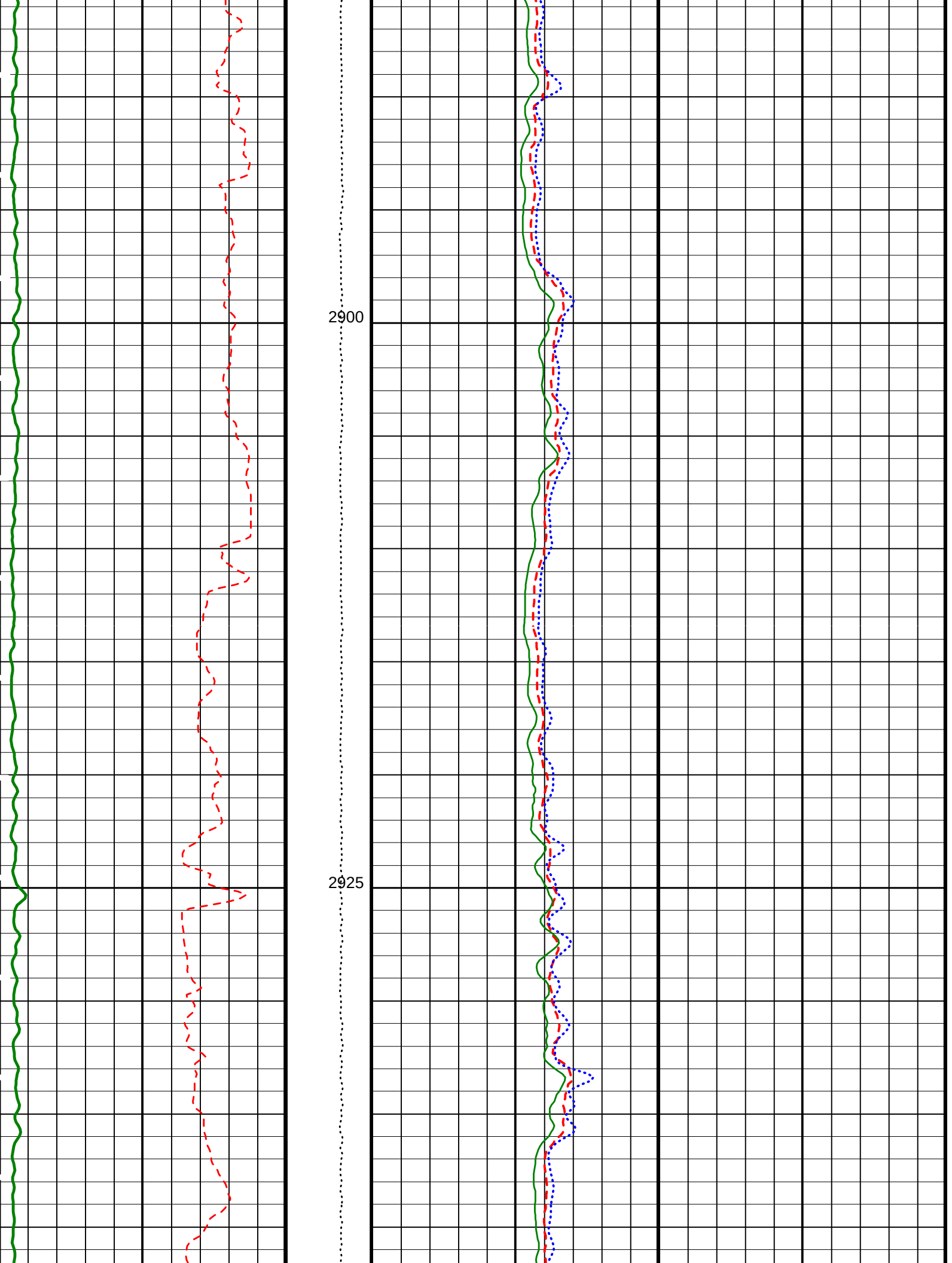
Tension (TENS)

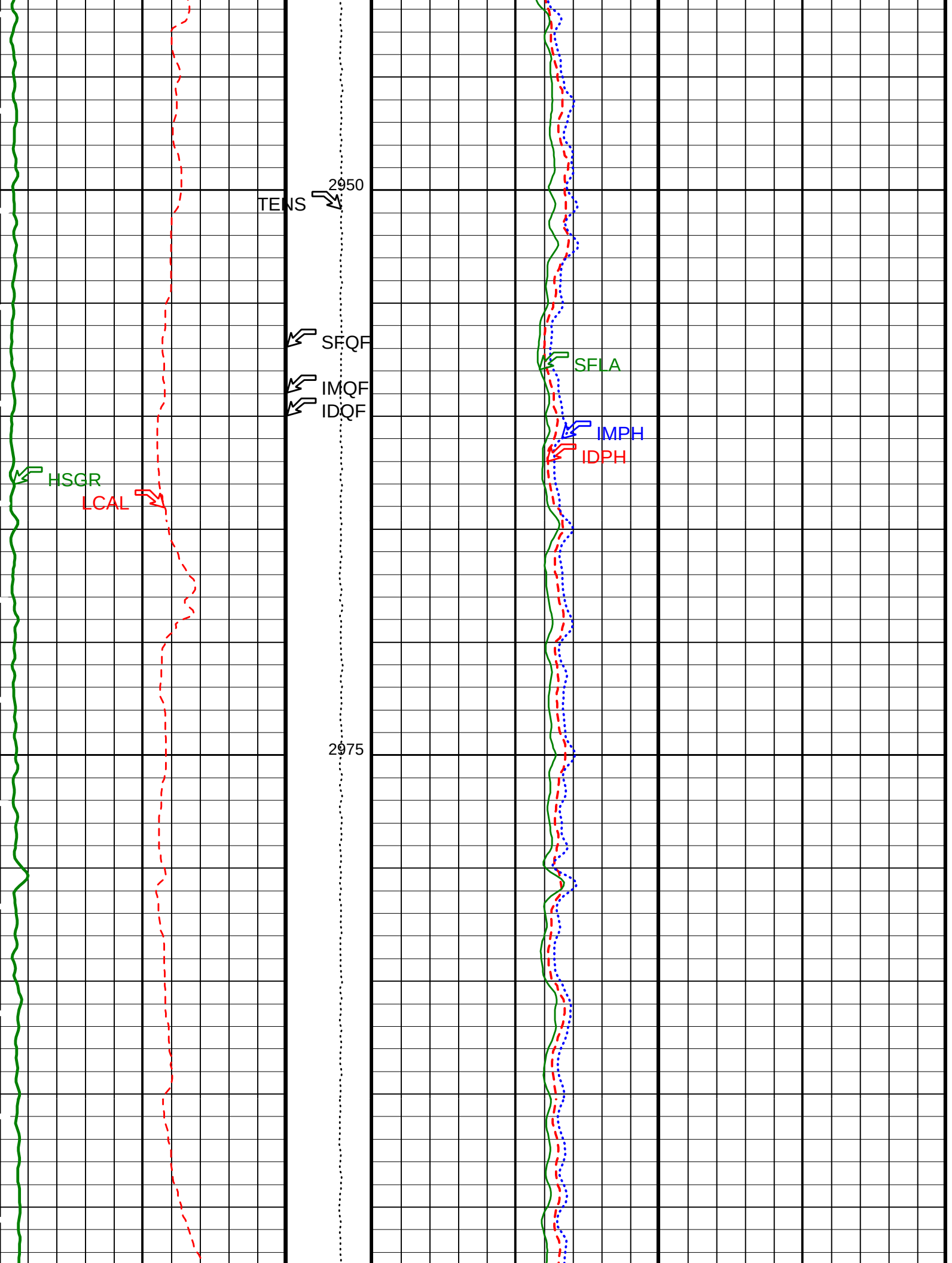
Deep Induction Phasor-processed Resistivity (IDPH)

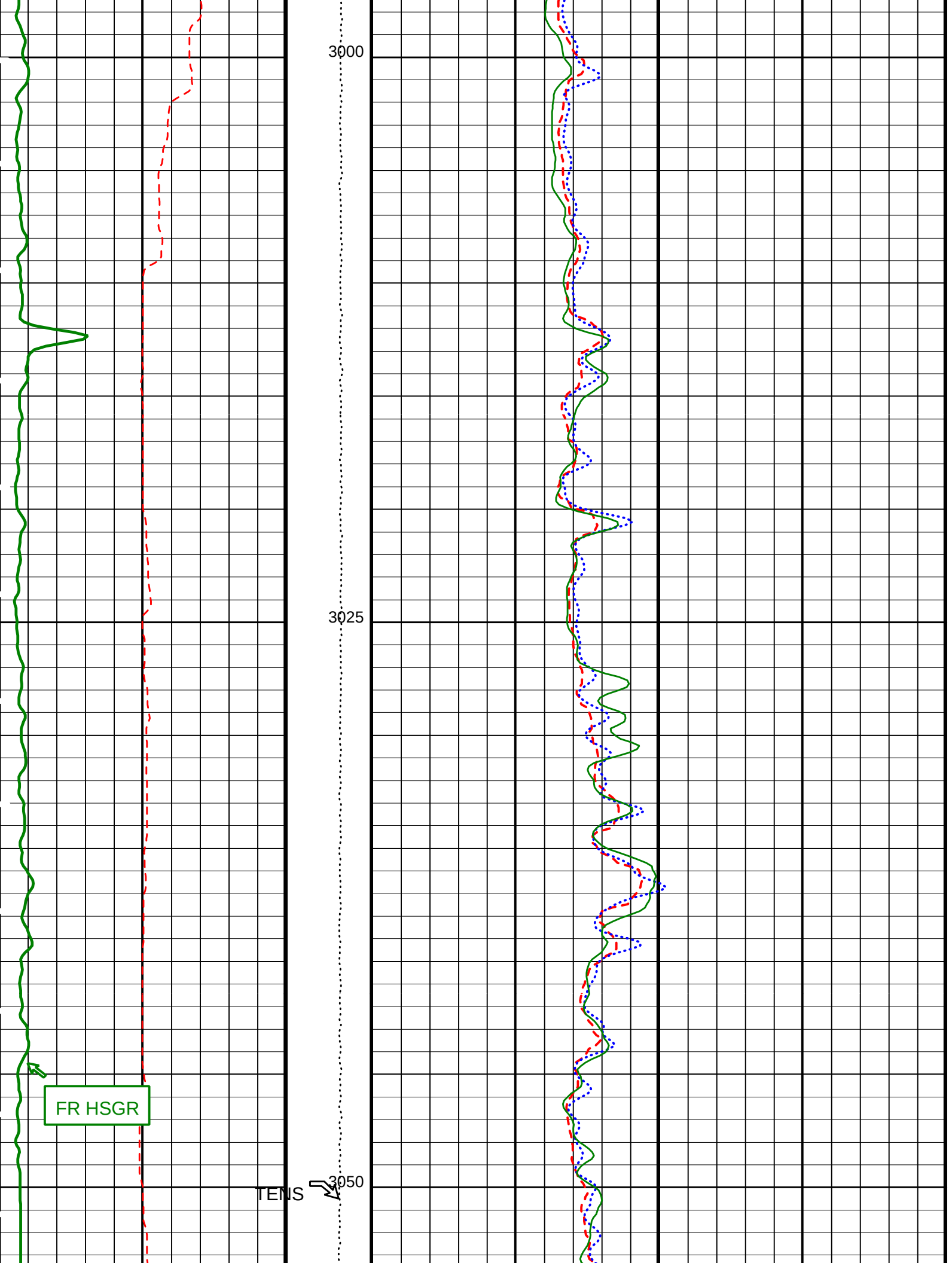

0
(IN)
20
(LBF)
10000
0
0
(OHMM)
3
Last Reading
2725
Sea Floor
2750

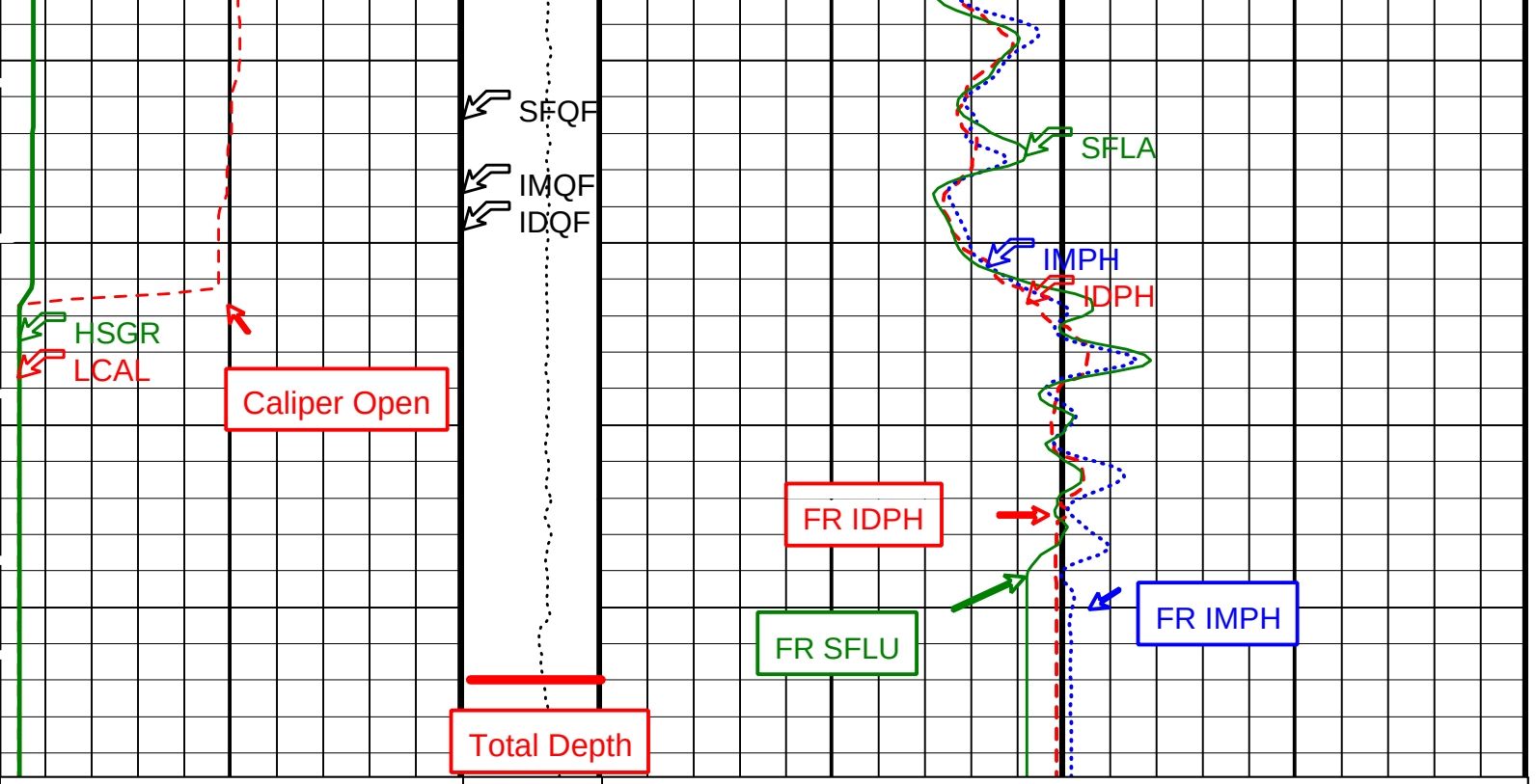

2775
2800
2825
Drill Pipe

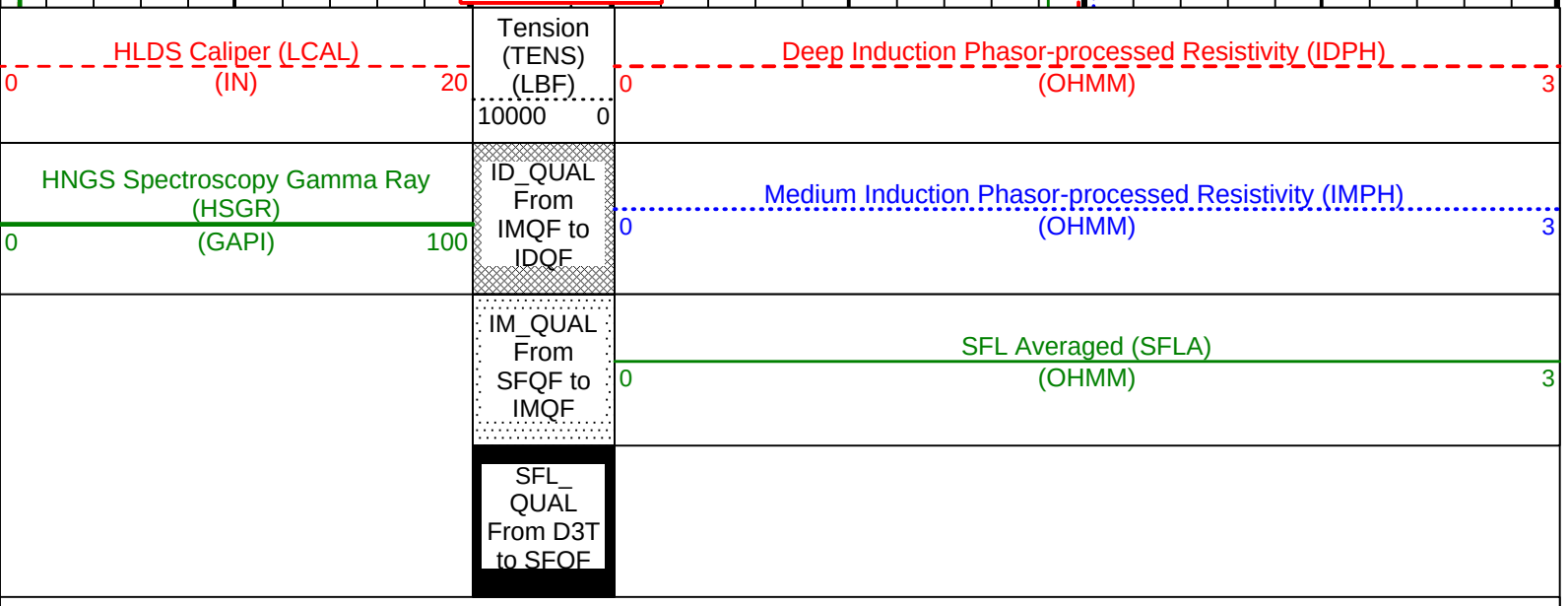

Close Caliper
TENS
2850
SFQF
IMQF
IDQF
SFLA
IMPH
IDPH
HSGR
LCAL
2875


2900
2925


2950
TENS
SFQF
IMQF
IDQF
HSGR
LCAL
SFLA
IMPH
IDPH
2975


3000
3025
3050
FR HSGR
TENS





PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	DIT-E: Dual Induction - E		
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	12	DEGC
DGF2	Deep 20 kHz Gain Factor	1.00789	
DPH2	Deep 20 kHz Phase Shift	-0.152394	DEG
DRE2	Deep Real 20 kHz Sonde Error Correction	16.357	MM/M
DSR2	Deep Sigma Reference (20 kHz)	1843	MM/M
DXE2	Deep Quad 20 kHz Sonde Error Correction	64.6326	MM/M
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
IFRS	DIT-E Induction Frequency Selector	20	
IPHA	DIT-E Phasor Processing Mode	ALL	
IPRO	DIT-E Induction Processing Selector	PHASOR	
ITEN	DIT-E Temperature Enable	ENABLE	
MGF2	Medium 20 kHz Gain Factor	1.02964	
MPH2	Medium 20 kHz Phase Shift	-0.933067	DEG
MRE2	Medium Real 20 kHz Sonde Error Correction	-1.78642	MM/M
MSR2	Medium Sigma Reference (20 kHz)	3250	MM/M

MXE2	Medium Quad 20 kHz Sonde Error Correction	-34.2041	MM/M
SFCR	SFL Channel Ratio	1000	
SHT	Surface Hole Temperature	20	DEGC
APS-BA: Accelerator-Porosity Tool			
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	12	DEGC
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
SHT	Surface Hole Temperature	20	DEGC
HNGS-BA: Hostile Natural Gamma Ray Sonde			
BAR1	HNGS Detector 1 Barite Constant	1	
BAR2	HNGS Detector 2 Barite Constant	1	
BHK	HNGS Borehole Potassium Correction Concentration	0	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	12	DEGC
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	-0.000414056	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNGS Processing Enable	YES	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	-999.25	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	-999.25	CPS
SGRC	HNGS Standard Gamma-Ray Correction Flag	YES	
SHT	Surface Hole Temperature	20	DEGC
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.97278	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.978534	
System and Miscellaneous			
BS	Bit Size	9.875	IN
DFD	Drilling Fluid Density	1.10	G/C3
TD	Total Depth	3073.84	M

Format: DITE_LinPhasor_1 Vertical Scale: 1:200 Graphics File Created: 01-Apr-2003 06:42

OP System Version: 10C0-306

MCM

DIT-E	10C0-306	DTA-A	10C0-306
HLDS	SPC-2277-NUCL_b	NPLC-B	OP10-KP1
APS-BA	SPC-2277-NUCL_b	HNGS-BA	SPC-2277-NUCL_b
DTC-H	10C0-306		

Output DLIS Files

DEFAULT	PI_LDL_APS_NGS_034LUP	FN:17	PRODUCER	01-Apr-2003 06:42
TCOMBO_CUST	PI_LDL_APS_NGS_034LUP	FN:18	PRODUCER	01-Apr-2003 06:42

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Hostile Litho-Density Sonde Wellsite Calibration - Background Measurement							
Master: 19-Mar-2003 8:18 Before: 19-Mar-2003 8:56 After: 1-Apr-2003 11:04							
SS Cs Resolution Bkg	9.000	8.145	8.032	8.087	0.05488	1.800	%
LS Cs Resolution Bkg	9.000	8.226	8.210	8.201	-0.009498	1.800	%
LSW1 Background	100.0	87.90	86.74	86.57	-0.1752	3.000	CPS
LSW2 Background	100.0	81.23	78.78	81.34	2.557	3.000	CPS
LSW3 Background	200.0	178.2	177.9	177.5	-0.3935	6.000	CPS
LSW4 Background	250.0	218.2	219.8	218.3	-1.500	7.500	CPS
LSW5 Background	600.0	500.7	502.9	504.9	2.036	18.00	CPS
SSW1 Background	100.0	96.96	96.31	96.78	0.4635	3.000	CPS
SSW2 Background	200.0	175.4	174.7	176.2	1.482	6.000	CPS
SSW3 Background	500.0	472.6	473.4	473.2	-0.2070	15.00	CPS

SSW4 Background	270.0	241.6	245.3	240.9	-4.418	8.100	CPS
SSW5 Background	200.0	176.4	179.0	178.6	-0.3630	6.000	CPS

Hostile Litho-Density Sonde Wellsite Calibration - Aluminum Measurement
Master: 19-Mar-2003 8:18

LSW1 Aluminum	600.0	584.5	N/A	N/A	N/A	N/A	CPS
LSW2 Aluminum	900.0	829.9	N/A	N/A	N/A	N/A	CPS
LSW3 Aluminum	1100	997.4	N/A	N/A	N/A	N/A	CPS
LSW4 Aluminum	580.0	505.8	N/A	N/A	N/A	N/A	CPS
LSW5 Aluminum	570.0	470.6	N/A	N/A	N/A	N/A	CPS
SSW1 Aluminum	2800	2651	N/A	N/A	N/A	N/A	CPS
SSW2 Aluminum	8000	7186	N/A	N/A	N/A	N/A	CPS
SSW3 Aluminum	11600	9956	N/A	N/A	N/A	N/A	CPS
SSW4 Aluminum	5000	4168	N/A	N/A	N/A	N/A	CPS
SSW5 Aluminum	660.0	541.7	N/A	N/A	N/A	N/A	CPS

Hostile Litho-Density Sonde Wellsite Calibration - Lithology Measurement
Master: 19-Mar-2003 8:18

LSW1 Iron	400.0	397.4	N/A	N/A	N/A	N/A	CPS
LSW2 Iron	730.0	671.1	N/A	N/A	N/A	N/A	CPS
LSW3 Iron	1000	891.3	N/A	N/A	N/A	N/A	CPS
LSW4 Iron	520.0	464.8	N/A	N/A	N/A	N/A	CPS
LSW5 Iron	470.0	435.6	N/A	N/A	N/A	N/A	CPS
SSW1 Iron	2100	1942	N/A	N/A	N/A	N/A	CPS
SSW2 Iron	6800	6036	N/A	N/A	N/A	N/A	CPS
SSW3 Iron	10800	9166	N/A	N/A	N/A	N/A	CPS
SSW4 Iron	4600	3852	N/A	N/A	N/A	N/A	CPS
SSW5 Iron	580.0	488.0	N/A	N/A	N/A	N/A	CPS

Hostile Litho-Density Sonde Wellsite Calibration - Caliper Calibration
Before: 19-Mar-2003 10:48

HLDS Caliper Small Ring	12.00	N/A	15.08	N/A	N/A	N/A	IN
HLDS Caliper Large Ring	15.25	N/A	18.18	N/A	N/A	N/A	IN

Accelerator-Porosity Tool Wellsite Calibration - Detector Background
Master: 4-Feb-2003 3:07 Before: 19-Mar-2003 7:58 After: 1-Apr-2003 11:09

Near Det Bkg Cntrate	30.00	33.33	32.30	32.52	0.2148	N/A	CPS
Far Det Bkg Cntrate	30.00	33.92	31.07	32.97	1.899	N/A	CPS
Array-1 Det Bkg Cntrate	30.00	29.51	28.70	29.49	0.7946	N/A	CPS
Array-2 Det Bkg Cntrate	30.00	29.89	30.55	30.31	-0.2431	N/A	CPS
Array Therm Det Bkg Cntrate	30.00	32.16	31.86	30.50	-1.366	N/A	CPS

Accelerator-Porosity Tool Wellsite Calibration - Calibration Ratios
Master: 4-Feb-2003 3:07

Near/Far Calibration Ratio	0.9250	0.8887	N/A	N/A	N/A	N/A	
Near/Array Calibration Ratio	1.030	1.054	N/A	N/A	N/A	N/A	
Near/Array Cal Ratio Up/Down	1.000	1.002	N/A	N/A	N/A	N/A	

Accelerator-Porosity Tool Wellsite Calibration - Tank Check
Master: 4-Feb-2003 3:08

Array-1 Standoff Porosity	11.75	11.53	N/A	N/A	N/A	N/A	PU
Array-2 Standoff Porosity	11.75	11.63	N/A	N/A	N/A	N/A	PU
Average Slowing Down Time	6.000	5.870	N/A	N/A	N/A	N/A	US
Array-1 SDT Ratio Up/Down	1.000	0.9864	N/A	N/A	N/A	N/A	
Array-2 SDT Ratio Up/Down	1.000	1.000	N/A	N/A	N/A	N/A	
Sigma Formation	27.50	27.18	N/A	N/A	N/A	N/A	CU

Hostile Natural Gamma Ray Sonde Wellsite Calibration - Detector 1 Check
Master: 15-Jan-2003 16:08 Before: 15-Jan-2003 16:17 After: 1-Apr-2003 11:05

Na 511 Peak Loc	40.00	40.59	40.72	40.58	-0.1443	1.000	
Na 511 Peak Res	15.50	17.05	17.42	16.25	-1.176	2.000	%
High Voltage	1150	1212	1212	1214	1.447	30.00	V
Na 1785 Peak Loc	142.6	145.6	145.3	145.2	-0.1385	7.000	
Na 1785 Peak Res	8.500	9.037	9.666	9.149	-0.5168	2.000	%
Temperature	15.50	32.69	32.84	24.72	-8.123	N/A	DEGC
Na Count Rate	45.00	44.80	43.98	42.06	-1.926	8.000	CPS

Hostile Natural Gamma Ray Sonde Wellsite Calibration - Detector 2 Check
Master: 15-Jan-2003 16:08 Before: 15-Jan-2003 16:17 After: 1-Apr-2003 11:05

Na 511 Peak Loc	40.00	40.55	40.57	40.59	0.01850	1.000	
Na 511 Peak Res	15.50	16.60	16.91	16.80	-0.1099	2.000	%
High Voltage	1150	1239	1239	1241	1.843	30.00	V
Na 1785 Peak Loc	142.6	144.7	144.4	144.6	0.2841	7.000	
Na 1785 Peak Res	8.500	9.925	9.708	9.075	-0.6330	2.000	%
Temperature	15.50	32.80	32.89	25.21	-7.689	N/A	DEGC
Na Count Rate	45.00	44.45	43.98	41.79	-2.191	8.000	CPS

Hostile Natural Gamma Ray Sonde Wellsite Calibration - Ratio Of Detector 1 To Detector 2
Master: 15-Jan-2003 16:08 Before: 15-Jan-2003 16:17 After: 1-Apr-2003 11:05

Coincidence Count Rate Ratio	1.000	1.008	1.0000	1.008	0.007858	0.05000	

Accelerator-Porosity Tool - Detector Plateau Settings :

Near Detector Plateau Setting 1728 V
Far Detector Plateau Setting 2073 V
Array Detector Plateau Setting 1958 V

Dual Induction - E / Equipment Identification

Primary Equipment:		
Dual Induction Sonde	DIS - HB	442
Dual Induction Cartridge	DIC - EB	438
Auxiliary Equipment:		
Mass Isolated Housing	MIH - ZA	417

Dual Induction - E Wellsite Calibration

Induction Electronics (10 kHz)

Phase	ID Elect Real Offset 10 kHz MM/M	Value
Before	-262.8 (Minimum) / 37.15 (Nominal) / 337.2 (Maximum)	38.09

Phase	ID Elect Real Gain 10 kHz	Value
Before	0.8294 (Minimum) / 0.9794 (Nominal) / 1.171 (Maximum)	0.9963

Phase	ID Elect Phase 10 kHz DEG	Value
Before	0.6325 (Minimum) / 10.63 (Nominal) / 20.63 (Maximum)	9.455

Phase	ID Elect Quad Offset 10 kHz MM/M	Value
Before	-277.5 (Minimum) / 22.53 (Nominal) / 322.5 (Maximum)	22.59

Phase	ID Elect Quad Gain 10 kHz	Value
Before	0.8193 (Minimum) / 0.9693 (Nominal) / 1.157 (Maximum)	0.9845

Phase	IM Elect Phase 10 kHz DEG	Value
Before	3.310 (Minimum) / 13.31 (Nominal) / 23.31 (Maximum)	13.00

Phase	IM Elect Real Offset 10 kHz MM/M	Value
Before	-453.5 (Minimum) / 96.54 (Nominal) / 646.5 (Maximum)	95.79

Phase	IM Elect Real Gain 10 kHz	Value
Before	0.8074 (Minimum) / 0.9574 (Nominal) / 1.140 (Maximum)	0.9546

Phase	IM Elect Quad Offset 10 kHz MM/M	Value
Before	-454.8 (Minimum) / 95.18 (Nominal) / 645.2 (Maximum)	93.60

Phase	IM Elect Quad Gain 10 kHz	Value
Before	0.8055 (Minimum) / 0.9555 (Nominal) / 1.137 (Maximum)	0.9516

Before: 1-Apr-2003 6:19

Dual Induction - E Wellsite Calibration

Induction Electronics (20 kHz)

Phase	ID Elect Real Offset 20 kHz MM/M	Value
Before	-110.3 (Minimum) / 14.68 (Nominal) / 139.7 (Maximum)	14.92

Phase	ID Elect Real Gain 20 kHz	Value
Before	0.8551 (Minimum) / 1.005 (Nominal) / 1.207 (Maximum)	1.016

Phase	ID Elect Phase 20 kHz DEG	Value
Before	-5.718 (Minimum) / 9.282 (Nominal) / 24.28 (Maximum)	7.671

Phase	ID Elect Quad Offset 20 kHz MM/M	Value
Before	-115.9 (Minimum) / 9.089 (Nominal) / 134.1 (Maximum)	9.026

Phase	ID Elect Quad Gain 20 kHz	Value
Before	0.8445 (Minimum) / 0.9945 (Nominal) / 1.192 (Maximum)	1.004

Phase	IM Elect Phase 20 kHz DEG	Value
Before	-2.653 (Minimum) / 12.35 (Nominal) / 27.35 (Maximum)	11.50

Phase	IM Elect Real Offset 20 kHz MM/M	Value
Before	-184.7 (Minimum) / 40.31 (Nominal) / 265.3 (Maximum)	39.93

Phase	IM Elect Real Gain 20 kHz	Value
Before	0.8587 (Minimum) / 1.009 (Nominal) / 1.212 (Maximum)	1.014

Phase	IM Elect Quad Offset 20 kHz MM/M	Value
Before	-185.2 (Minimum) / 39.80 (Nominal) / 264.8 (Maximum)	39.12

Phase	IM Elect Quad Gain 20 kHz	Value
Before	0.8566 (Minimum) / 1.007 (Nominal) / 1.209 (Maximum)	1.011

Before: 1-Apr-2003 6:20

Dual Induction - E Wellsite Calibration

Induction Electronics (40 kHz)

Phase	ID Elect Real Offset 40 kHz MM/M	Value
Before	-75.43 (Minimum) / 9.570 (Nominal) / 94.57 (Maximum)	9.697

Phase	ID Elect Real Gain 40 kHz	Value
Before	0.8395 (Minimum) / 0.9895 (Nominal) / 1.185 (Maximum)	0.9950

Phase	ID Elect Phase 40 kHz DEG	Value
Before	9.068 (Minimum) / 29.07 (Nominal) / 49.07 (Maximum)	25.87

Phase	ID Elect Quad Offset 40 kHz MM/M	Value
Before		5.907

Phase	ID Elect Quad Gain 40 kHz	Value
Before		0.9917

Phase	IM Elect Phase 40 kHz DEG	Value
Before		30.80

Before		5.867	Before		0.9817	Before		29.89
-79.10 (Minimum)	5.897 (Nominal)	90.90 (Maximum)	0.8281 (Minimum)	0.9781 (Nominal)	1.169 (Maximum)	12.68 (Minimum)	32.68 (Nominal)	52.68 (Maximum)

Phase	IM Elect Real Offset 40 kHz MM/M	Value	Phase	IM Elect Real Gain 40 kHz	Value
Before		26.05	Before		1.028
-103.8 (Minimum)	26.19 (Nominal)	156.2 (Maximum)	0.8673 (Minimum)	1.017 (Nominal)	1.224 (Maximum)

Phase	IM Elect Quad Offset 40 kHz MM/M	Value	Phase	IM Elect Quad Gain 40 kHz	Value
Before		25.56	Before		1.024
-104.1 (Minimum)	25.92 (Nominal)	155.9 (Maximum)	0.8649 (Minimum)	1.015 (Nominal)	1.221 (Maximum)

Before: 1-Apr-2003 6:21

Dual Induction - E Wellsite Calibration

SFL Electronics

Phase	SFL Voltage Offset MV	Value	Phase	SFL Voltage Gain	Value
Before		1.165	Before		1.014
-15.00 (Minimum)	0 (Nominal)	15.00 (Maximum)	0.8500 (Minimum)	1.000 (Nominal)	1.200 (Maximum)

Phase	SFL Current Offset MA	Value	Phase	SFL Current Gain	Value
Before		0.006788	Before		0.9926
-0.6000 (Minimum)	0 (Nominal)	0.6000 (Maximum)	0.8500 (Minimum)	1.000 (Nominal)	1.200 (Maximum)

Before: 1-Apr-2003 6:22

Dual Induction - E Wellsite Calibration

Electronics Calibration Changes Files/Depth Intervals: 31: 0.0 - 0.0 33: 0.0 - 0.0 34: 3074.7 - 2720.0

Phase	ID (R > 27 OHM-M) MM/M	Value	Phase	ID (R < 27 OHM-M) %	Value	Phase	SFL (R < 1 OHM-M) OHMM	Value
After		0	After		0.0001440	After		0.0006286
0 (Minimum)	0 (Nominal)	0.7500 (Maximum)	0 (Minimum)	0 (Nominal)	2.000 (Maximum)	0 (Minimum)	0 (Nominal)	0.02000 (Maximum)

Phase	IM (R > 27 OHM-M) MM/M	Value	Phase	IM (R < 27 OHM-M) %	Value
After		0	After		0.0001075
0 (Minimum)	0 (Nominal)	0.7500 (Maximum)	0 (Minimum)	0 (Nominal)	2.000 (Maximum)

Phase	SFL (R > 27 OHM-M) MM/M	Value	Phase	SFL (R < 27 OHM-M) %	Value
After		0	After		0.0005462
0 (Minimum)	0 (Nominal)	0.7500 (Maximum)	0 (Minimum)	0 (Nominal)	2.000 (Maximum)

After: 1-Apr-2003 9:58

Hostile Litho-Density Sonde / Equipment Identification

Primary Equipment:		
Hostile Litho Density Sonde	HLDS - D	45
Hostile Litho Density High Voltage	HLDV - D	35
Gamma Source Radioactive	GSR - Z	1846
Auxiliary Equipment:		
Hostile Litho Density Pad	HLDP - C	35
Hostile Litho Density High Voltage Housi	HEH - H	35

Hostile Litho-Density Sonde Wellsite Calibration

Background Measurement

Phase	SS Cs Resolution Bkg %	Value	Phase	LS Cs Resolution Bkg %	Value	Phase	LSW1 Background CPS	Value
Master		8.145	Master		8.226	Master		87.90
Before		8.032	Before		8.210	Before		86.74
After		8.087	After		8.201	After		86.57
7.000 (Minimum)	9.000 (Nominal)	11.00 (Maximum)	7.000 (Minimum)	9.000 (Nominal)	11.00 (Maximum)	55.00 (Minimum)	100.0 (Nominal)	150.0 (Maximum)

Phase	LSW2 Background CPS	Value	Phase	LSW3 Background CPS	Value	Phase	LSW4 Background CPS	Value
Master		81.23	Master		178.2	Master		218.2
Before		78.78	Before		177.9	Before		219.8

After	81.34		After	177.5		After	218.3	
50.00 (Minimum)	100.0 (Nominal)	140.0 (Maximum)	110.0 (Minimum)	200.0 (Nominal)	290.0 (Maximum)	140.0 (Minimum)	250.0 (Nominal)	360.0 (Maximum)

Phase	LSW5 Background CPS	Value	Phase	SSW1 Background CPS	Value	Phase	SSW2 Background CPS	Value
Master		500.7	Master		96.96	Master		175.4
Before		502.9	Before		96.31	Before		174.7
After		504.9	After		96.78	After		176.2
330.0 (Minimum)	600.0 (Nominal)	830.0 (Maximum)	55.00 (Minimum)	100.0 (Nominal)	150.0 (Maximum)	100.0 (Minimum)	200.0 (Nominal)	260.0 (Maximum)

Phase	SSW3 Background CPS	Value	Phase	SSW4 Background CPS	Value	Phase	SSW5 Background CPS	Value
Master		472.6	Master		241.6	Master		176.4
Before		473.4	Before		245.3	Before		179.0
After		473.2	After		240.9	After		178.6
280.0 (Minimum)	500.0 (Nominal)	700.0 (Maximum)	150.0 (Minimum)	270.0 (Nominal)	380.0 (Maximum)	110.0 (Minimum)	200.0 (Nominal)	270.0 (Maximum)

Master: 19-Mar-2003 8:18 Before: 19-Mar-2003 8:56 After: 1-Apr-2003 11:04

Nuclear Porosity Lithology Cartridge - B / Equipment Identification

Primary Equipment:		
NPLC Cartridge	NPLC - B	79
Auxiliary Equipment:		
NPLC Housing	NPH - B	82

Accelerator-Porosity Tool / Equipment Identification

Primary Equipment:		
Accelerator-Porosity Sonde	APS - BA	22
APS Minitron	MNTR - F	4185
Auxiliary Equipment:		
Accelerator-Porosity Housing	APH - AC	22
APS Calibration Water Tank	SFT - 178	4722
APS Aluminium Calibrator Sleeve	SFT - 281	24

Accelerator-Porosity Tool Wellsite Calibration

Detector Background

Phase	Near Det Bkg Cntrate CPS	Value	Phase	Far Det Bkg Cntrate CPS	Value	Phase	Array-1 Det Bkg Cntrate CPS	Value
Master		33.33	Master		33.92	Master		29.51
Before		32.30	Before		31.07	Before		28.70
After		32.52	After		32.97	After		29.49
1.000 (Minimum)	30.00 (Nominal)	50.00 (Maximum)	1.000 (Minimum)	30.00 (Nominal)	50.00 (Maximum)	1.000 (Minimum)	30.00 (Nominal)	50.00 (Maximum)

Phase	Array-2 Det Bkg Cntrate CPS	Value	Phase	Array Therm Det Bkg Cntrate CPS	Value
Master		29.89	Master		32.16
Before		30.55	Before		31.86
After		30.31	After		30.50
1.000 (Minimum)	30.00 (Nominal)	50.00 (Maximum)	1.000 (Minimum)	30.00 (Nominal)	50.00 (Maximum)

Master: 4-Feb-2003 3:07 Before: 19-Mar-2003 7:58 After: 1-Apr-2003 11:09

Accelerator-Porosity Tool Wellsite Calibration

Calibration Ratios

Phase	Near/Far Calibration Ratio	Value	Phase	Near/Array Calibration Ratio	Value	Phase	Near/Array Cal Ratio Up/Down	Value
Master		0.8887	Master		1.054	Master		1.002
0.8000 (Minimum)	0.9250 (Nominal)	1.050 (Maximum)	0.9000 (Minimum)	1.030 (Nominal)	1.170 (Maximum)	0.9700 (Minimum)	1.000 (Nominal)	1.030 (Maximum)

Master: 4-Feb-2003 3:07

Accelerator-Porosity Tool Wellsite Calibration

Tank Check

Phase	Array-1 Standoff Porosity PU	Value
Master		11.53
	9.900 (Minimum) 11.75 (Nominal) 13.60 (Maximum)	

Phase	Array-2 Standoff Porosity PU	Value
Master		11.63
	9.900 (Minimum) 11.75 (Nominal) 13.60 (Maximum)	

Phase	Average Slowing Down Time US	Value
Master		5.870
	5.500 (Minimum) 6.000 (Nominal) 6.250 (Maximum)	

Phase	Array-1 SDT Ratio Up/Down	Value
Master		0.9864
	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	

Phase	Array-2 SDT Ratio Up/Down	Value
Master		1.000
	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	

Phase	Sigma Formation CU	Value
Master		27.18
	20.00 (Minimum) 27.50 (Nominal) 35.00 (Maximum)	

Master: 4-Feb-2003 3:08

Hostile Natural Gamma Ray Sonde / Equipment Identification

Primary Equipment:		
HNGS Sonde	HNGS - BA	77
Auxiliary Equipment:		
HNGS Sonde Housing	HNSH - BA	79
Gamma Source Radioactive	GSR - U	135

Hostile Natural Gamma Ray Sonde Wellsite Calibration

Detector 1 Check

Phase	Na 511 Peak Loc	Value
Master		40.59
Before		40.72
After		40.58
	37.50 (Minimum) 40.00 (Nominal) 42.50 (Maximum)	

Phase	Na 511 Peak Res %	Value
Master		17.05
Before		17.42
After		16.25
	12.00 (Minimum) 15.50 (Nominal) 19.00 (Maximum)	

Phase	High Voltage V	Value
Master		1212
Before		1212
After		1214
	900.0 (Minimum) 1150 (Nominal) 1600 (Maximum)	

Phase	Na 1785 Peak Loc	Value
Master		145.6
Before		145.3
After		145.2
	135.0 (Minimum) 142.6 (Nominal) 150.3 (Maximum)	

Phase	Na 1785 Peak Res %	Value
Master		9.037
Before		9.666
After		9.149
	7.000 (Minimum) 8.500 (Nominal) 11.00 (Maximum)	

Phase	Temperature DEGC	Value
Master		32.69
Before		32.84
After		24.72
	-28.89 (Minimum) 15.50 (Nominal) 60.00 (Maximum)	

Phase	Na Count Rate CPS	Value
Master		44.80
Before		43.98
After		42.06
	10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)	

Master: 15-Jan-2003 16:08 Before: 15-Jan-2003 16:17 After: 1-Apr-2003 11:05

Hostile Natural Gamma Ray Sonde Wellsite Calibration

Detector 2 Check

Phase	Na 511 Peak Loc	Value
Master		40.55
Before		40.57
After		40.59
	37.50 (Minimum) 40.00 (Nominal) 42.50 (Maximum)	

Phase	Na 511 Peak Res %	Value
Master		16.60
Before		16.91
After		16.80
	12.00 (Minimum) 15.50 (Nominal) 19.00 (Maximum)	

Phase	High Voltage V	Value
Master		1239
Before		1239
After		1241
	900.0 (Minimum) 1150 (Nominal) 1600 (Maximum)	

Phase	Na 1785 Peak Loc	Value
Master		144.7
Before		144.4
After		144.6
	135.0 (Minimum) 142.6 (Nominal) 150.3 (Maximum)	

Phase	Na 1785 Peak Res %	Value
Master		9.925
Before		9.708
After		9.075
	7.000 (Minimum) 8.500 (Nominal) 11.00 (Maximum)	

Phase	Temperature DEGC	Value
Master		32.80
Before		32.89
After		25.21
	-28.89 (Minimum) 15.50 (Nominal) 60.00 (Maximum)	

Phase	Na Count Rate CPS	Value
Master		44.45

Before		43.98
After		41.79

10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)

Master: 15-Jan-2003 16:08 Before: 15-Jan-2003 16:17 After: 1-Apr-2003 11:05

Hostile Natural Gamma Ray Sonde Wellsite Calibration

Ratio Of Detector 1 To Detector 2

Phase	Coincidence Count Rate Ratio	Value
Master		1.008
Before		1.0000
After		1.008

0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)

Master: 15-Jan-2003 16:08

Before: 15-Jan-2003 16:17

After: 1-Apr-2003 11:05

Company: Lamont Doherty

Schlumberger

Well: Leg 208, Site 1263A
Field: Walvis Ridge
Country: Africa
Ocean: Atlantic

Phasor Induction